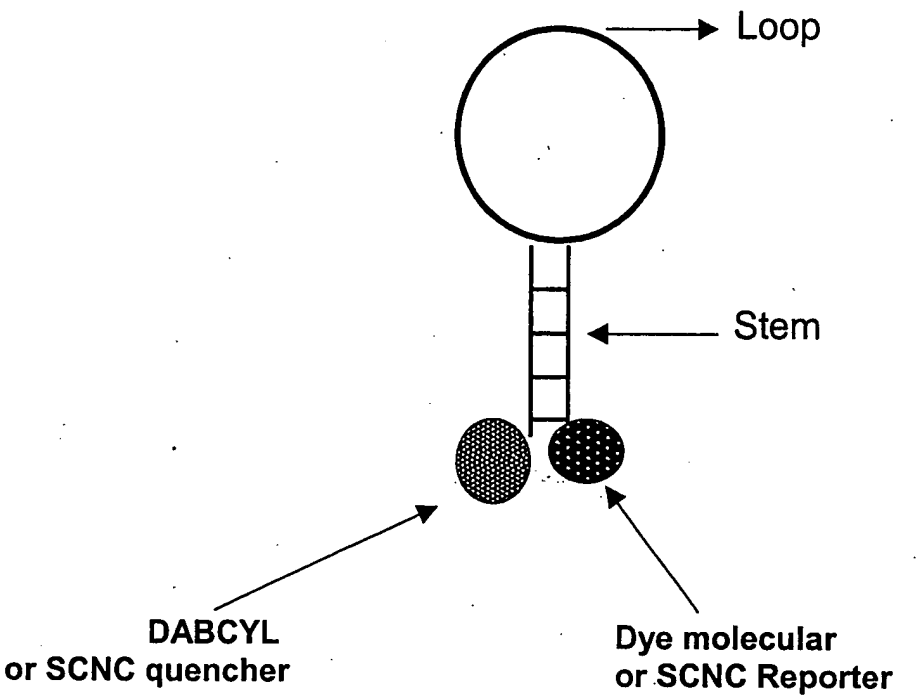


FIGURE 1A

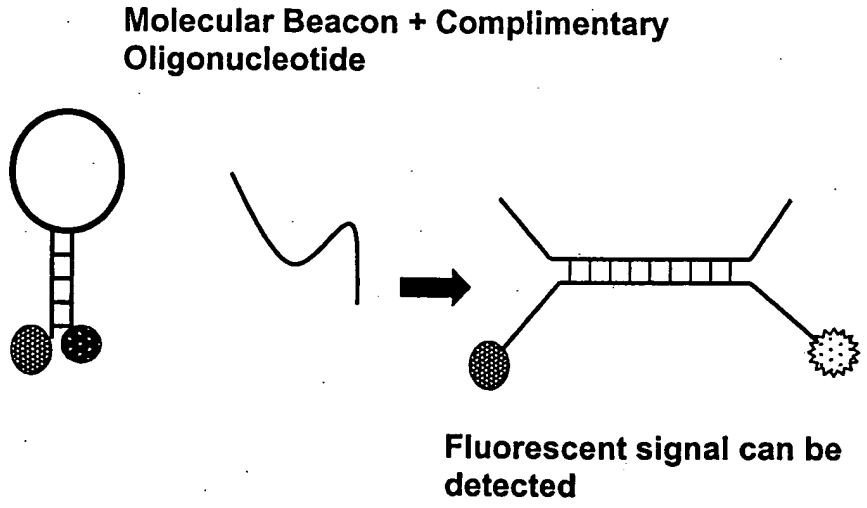


FIGURE 1B

Molecular Beacon on Spectrally Encoded Microspheres + Target Oligonucleotide

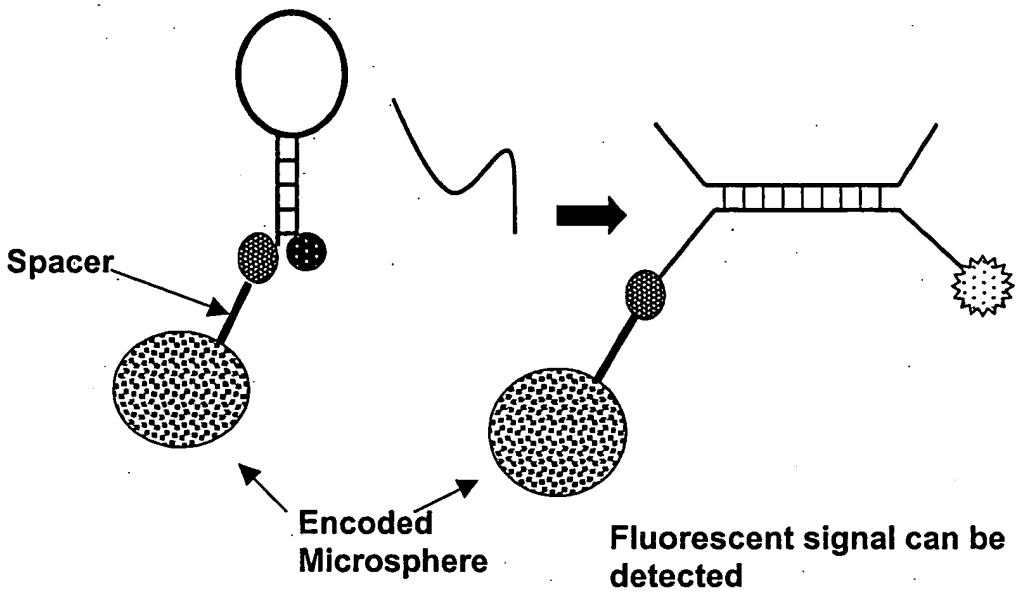


FIGURE 2

Molecular beacons on Qbead microspheres + target oligonucleotide

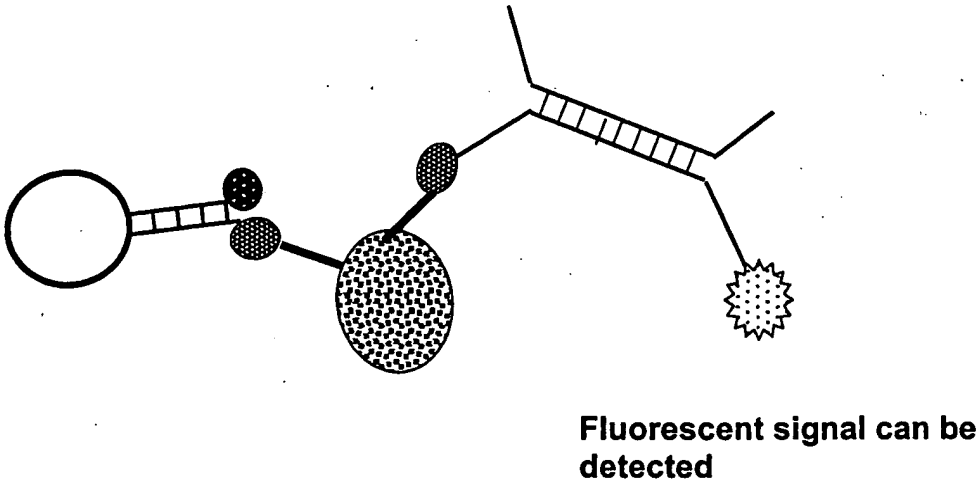


FIGURE 3

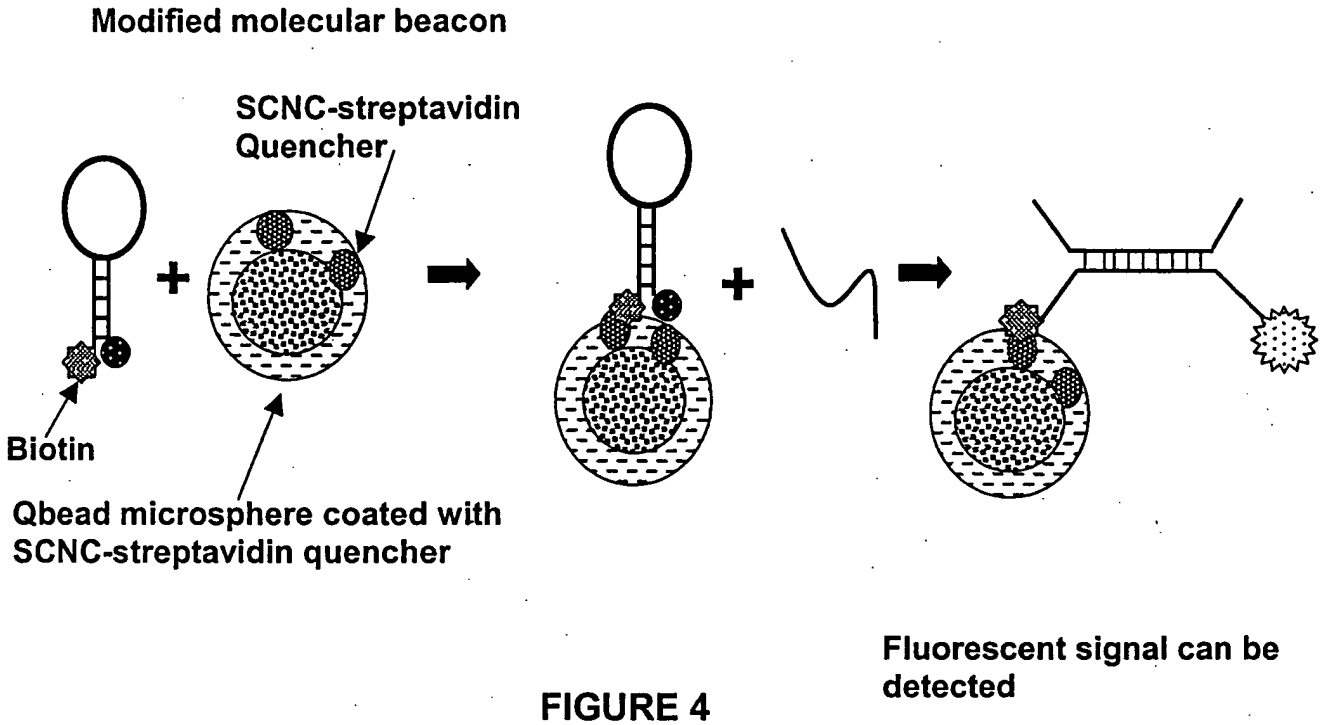


FIGURE 4

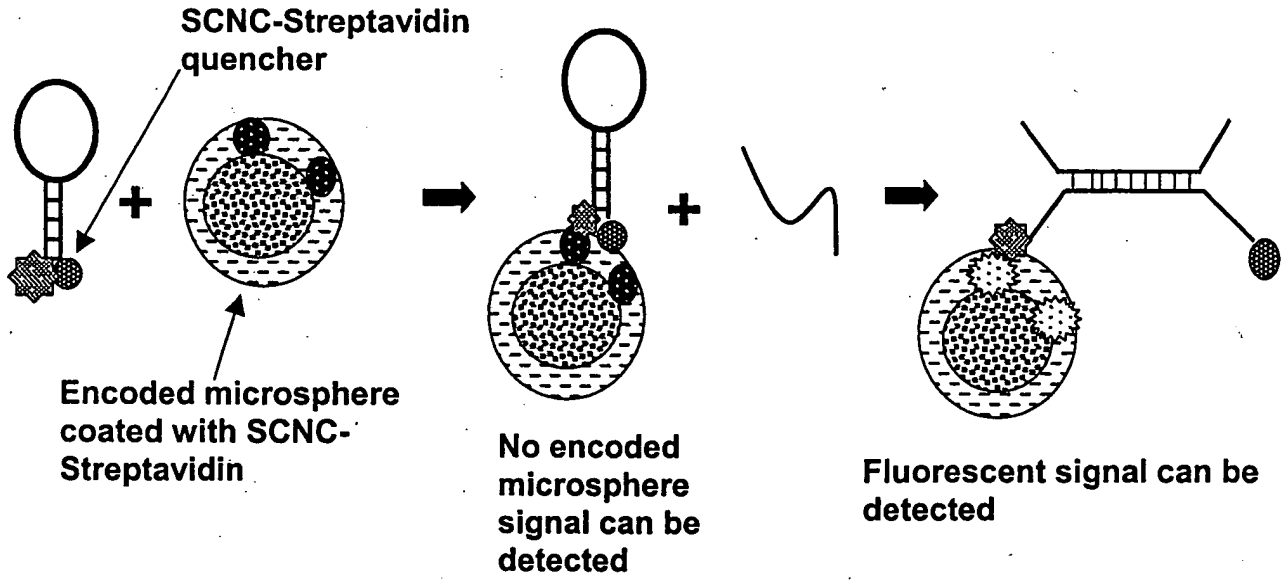


FIGURE 5

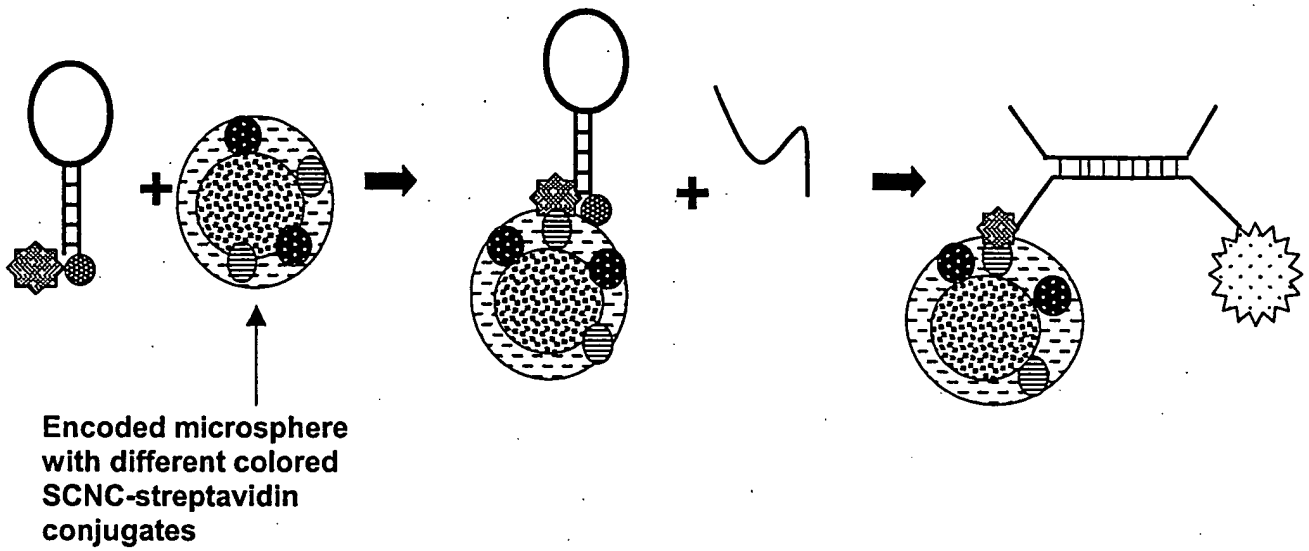

Encoded microsphere
with different colored
SCNC-streptavidin
conjugates

FIGURE 6

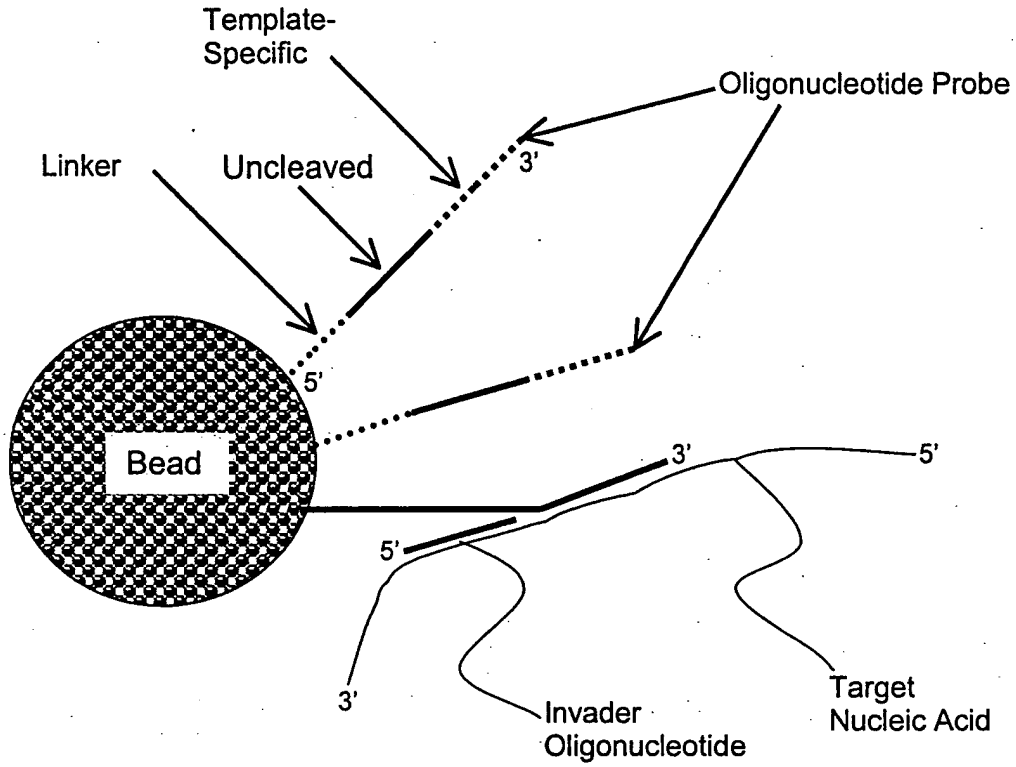

Template-
Specific
Oligonucleotide Probe
Linker
Uncleaved
3'
5'
Bead
3'
5'
5'
3'
Invader
Oligonucleotide
Target
Nucleic Acid

Figure 7A

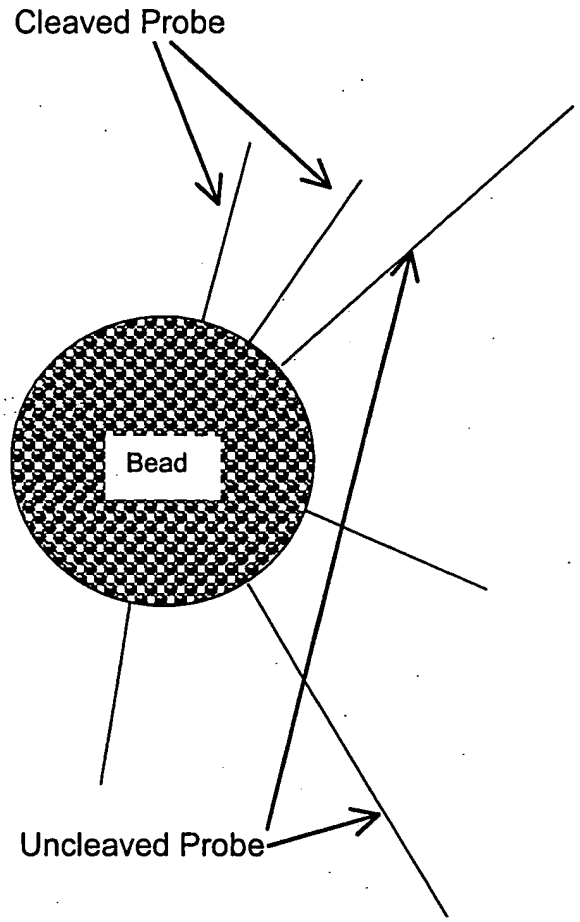


Figure 7B

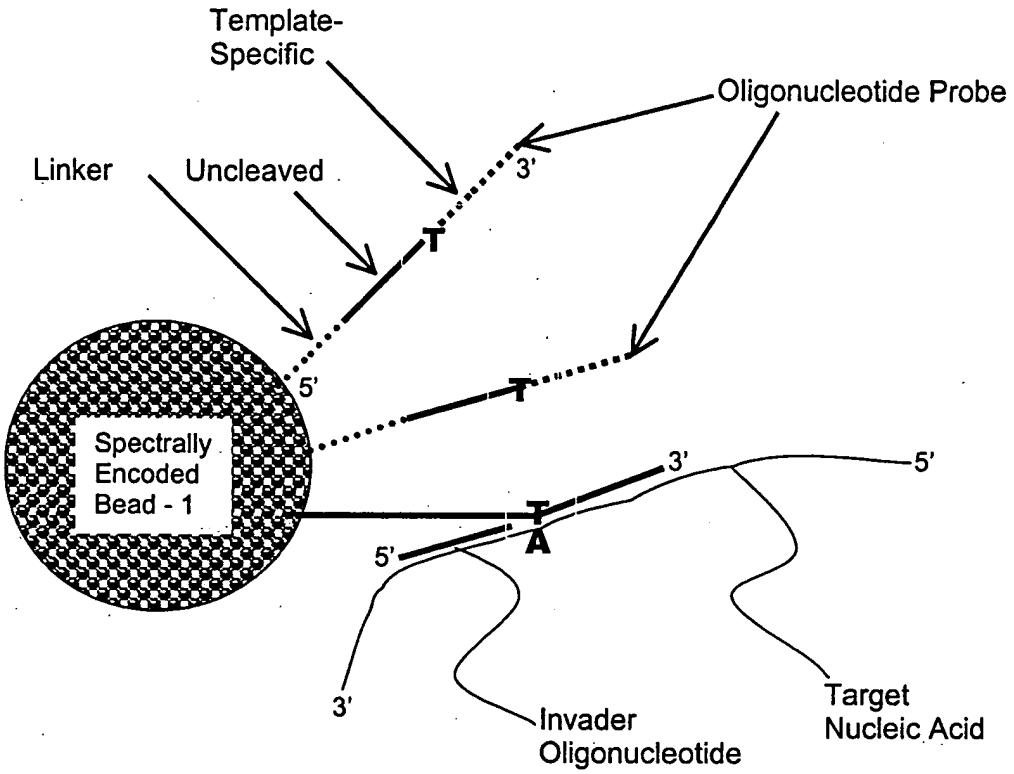

Template-
Specific
Oligonucleotide Probe
Linker
Uncleaved
3'
T
5'
T
Spectrally
Encoded
Bead - 1
3'
5'
T
A
5'
3'
Invader
Oligonucleotide
Target
Nucleic Acid

Figure 8A

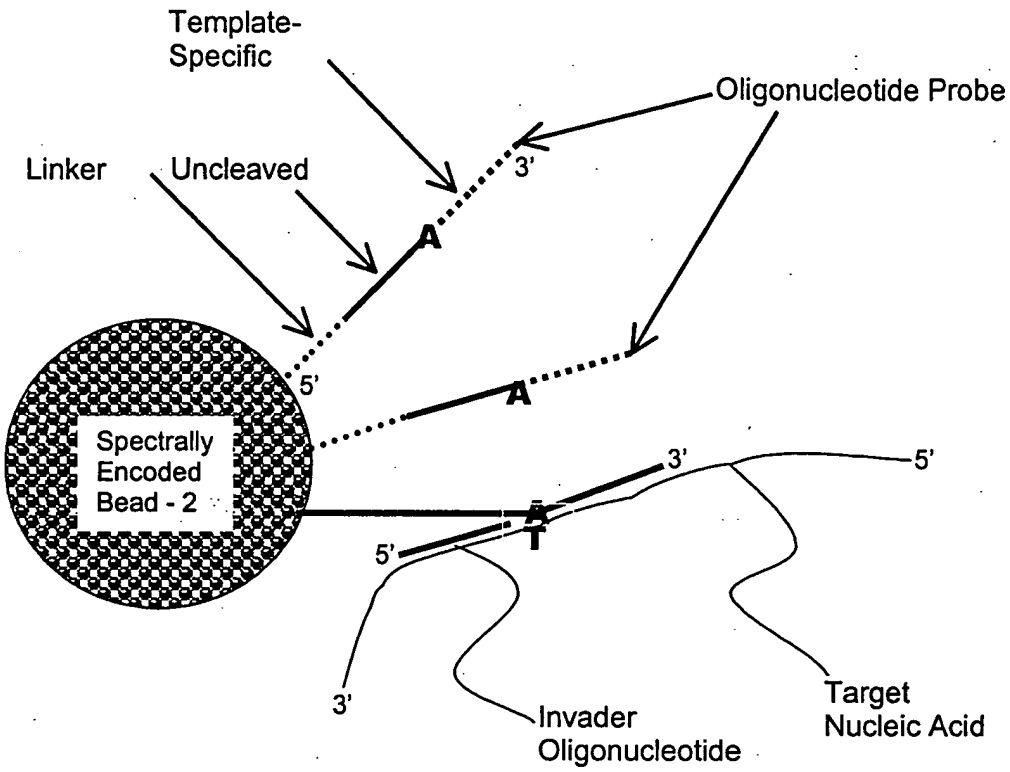

Template-
Specific
Oligonucleotide Probe
Linker
Uncleaved
3'
A
5'
A
Spectrally
Encoded
Bead - 2
3'
5'
A
T
5'
3'
Invader
Oligonucleotide
Target
Nucleic Acid

Figure 8B

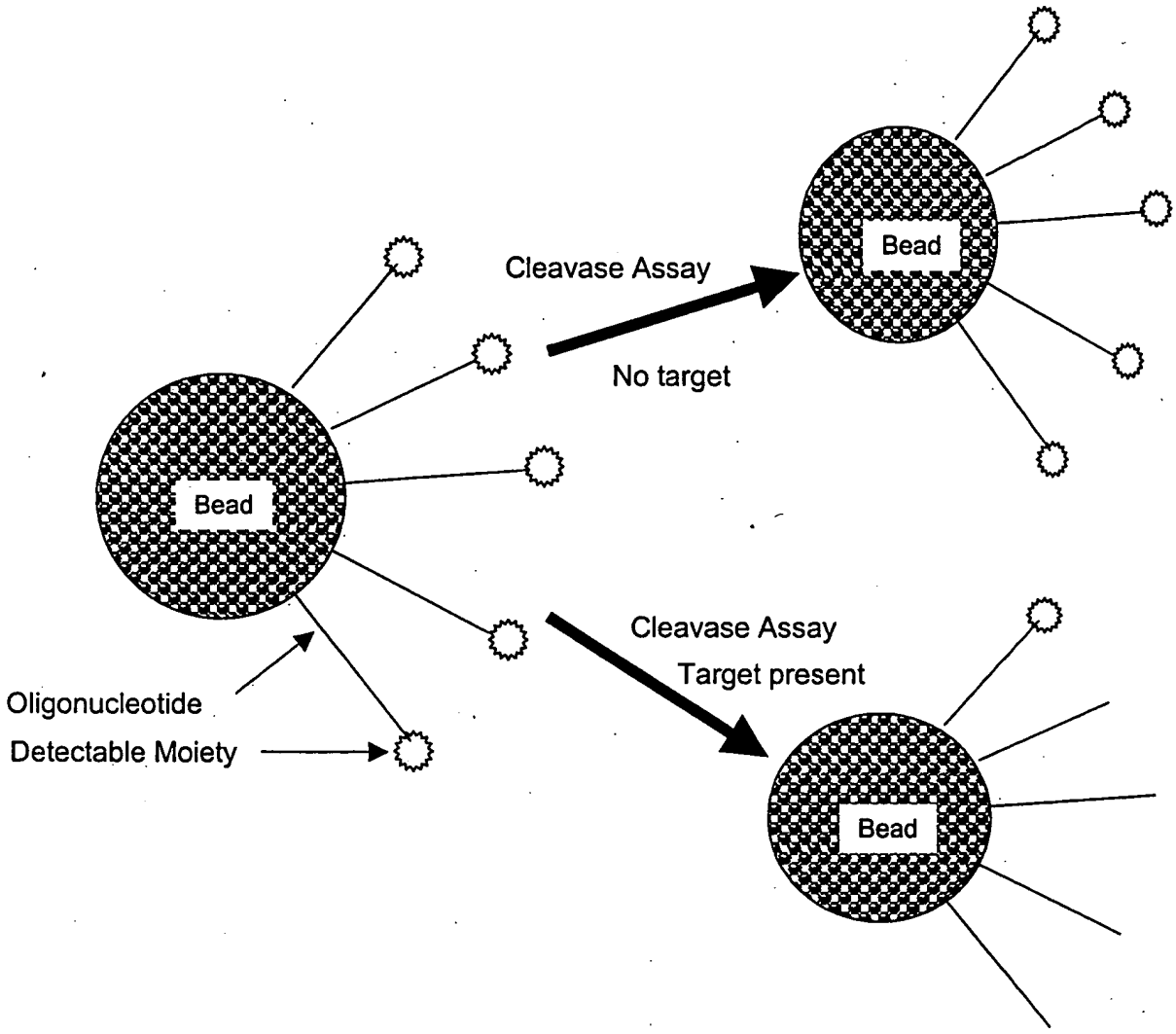

Cleavase Assay
No target
Bead
Bead
Cleavase Assay
Target present
Bead
Oligonucleotide
Detectable Moiety

Figure 9

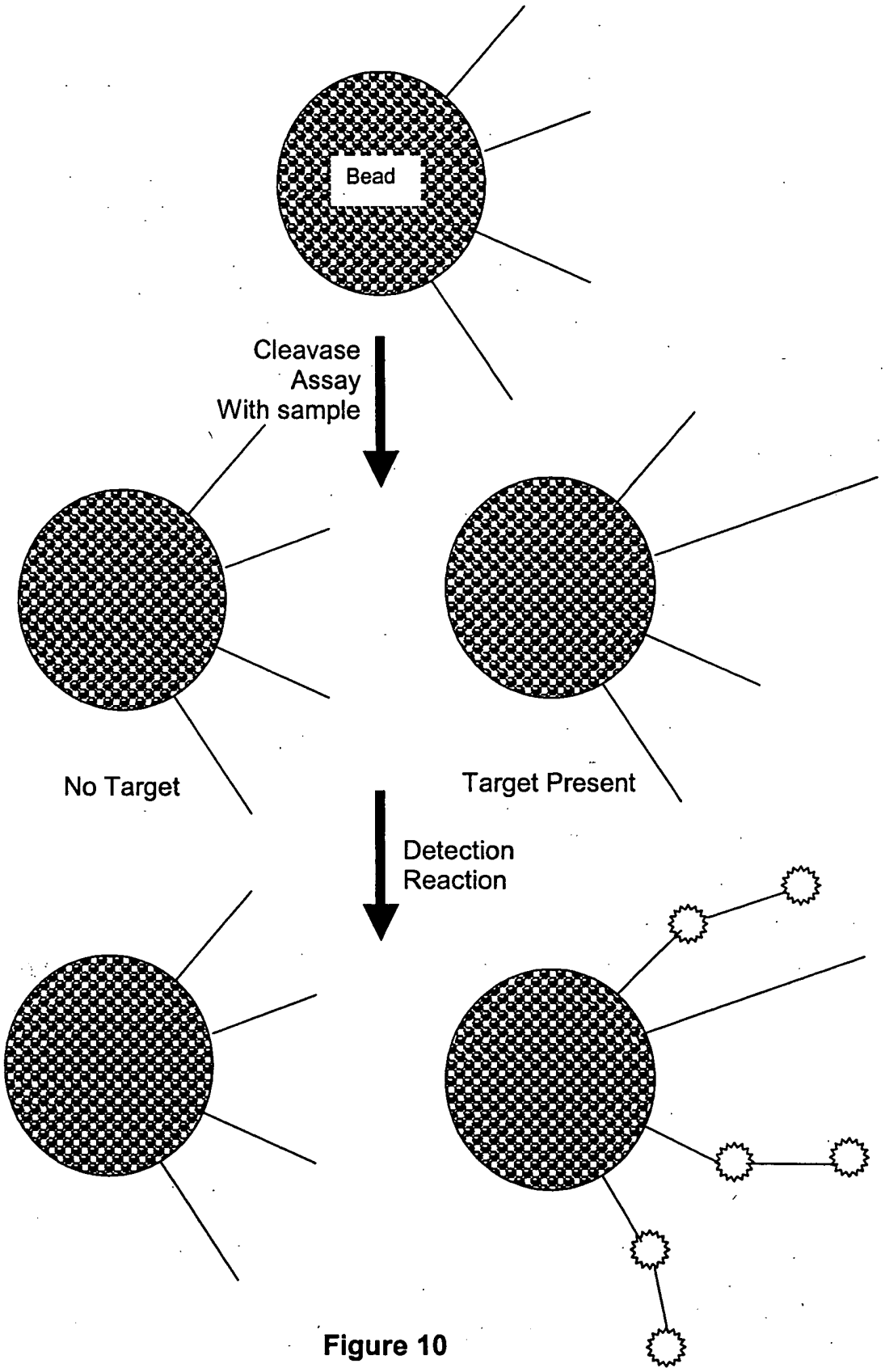

Bead
Cleavase
Assay
With sample
No Target
Target Present
Detection
Reaction

Figure 10

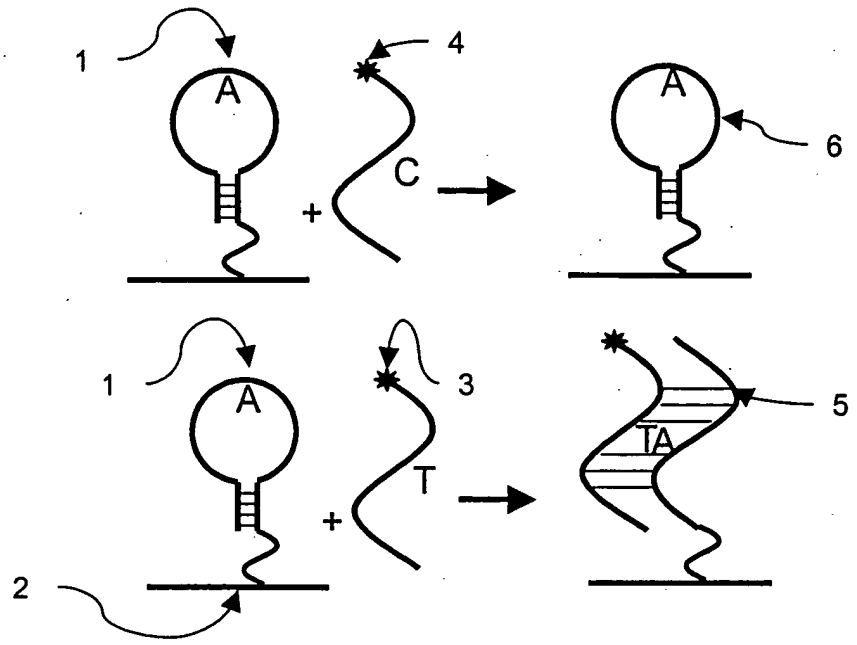
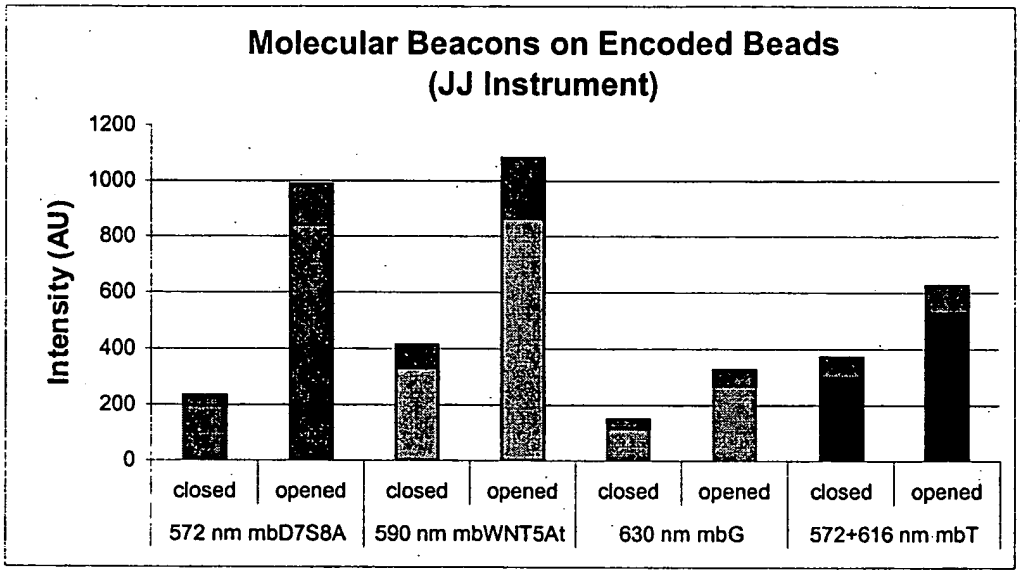
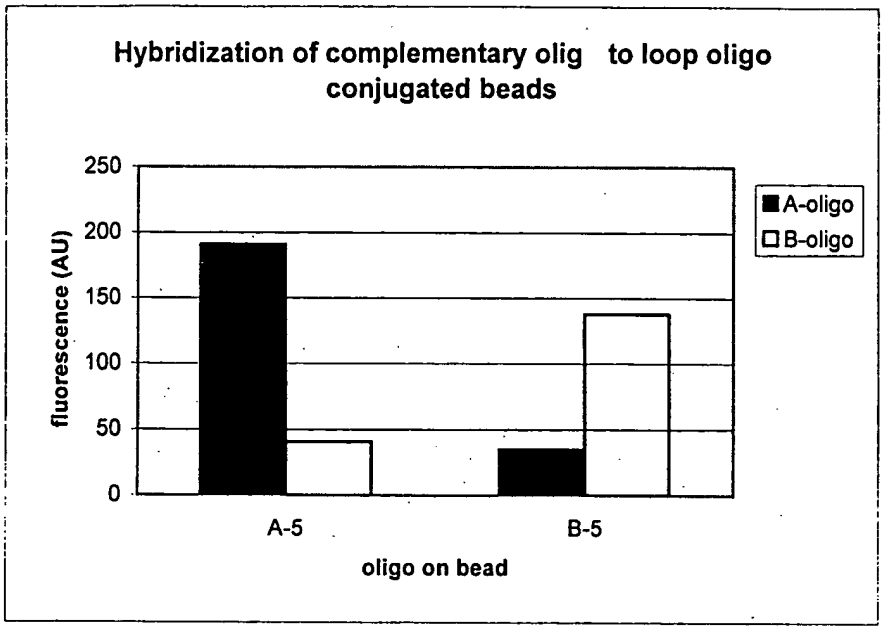


Figure 11 illustrates a SNP discrimination using the loop probe strategy. The unlabeled loop(11) attached to the substrate(21) will hybridize specifically to the perfectly complementary strand(31) in the sample. Fluorescence can be detected based on hybridization of the labeled complementary strand(51), and will not be detected with the mismatched sample(61).

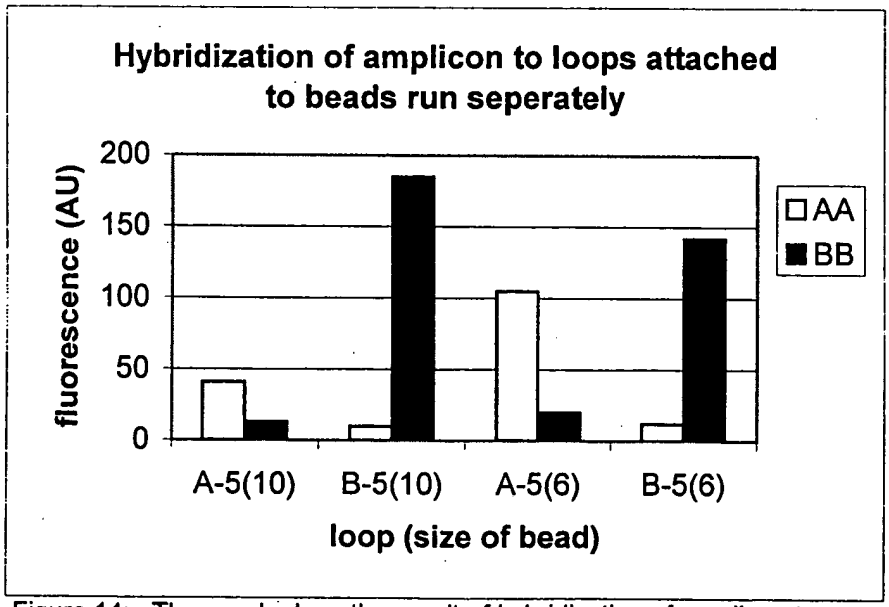
Fig. 12


Molecular Beacons on Encoded Beads
(JJ Instrument)
Intensity (AU)
1200
1000
800
600
400
200
0
closed
opened
closed
opened
closed
opened
closed
opened
572 nm mbD7S8A
590 nm mbWNT5At
630 nm mbG
572+616 nm mbT



	complementary oligo	
bead	A-oligo	B-oligo
A-5	191	41
B-5	35	138

Figure 13+A46: Hybridization of complementary oligo to allele specific oligos on 10μ beads.



	amplicon	
bead	AA	BB
A-5(10)	41	13
B-5(10)	10	185
A-5(6)	105	20
B-5(6)	12	142

Figure 14: The graph show the result of hybridization of amplicon to allele specific loop oligo conjugated beads using either 10μ or 6μ beads. The results show allele specificity on the bead for the AA genotype and the BB genotype.

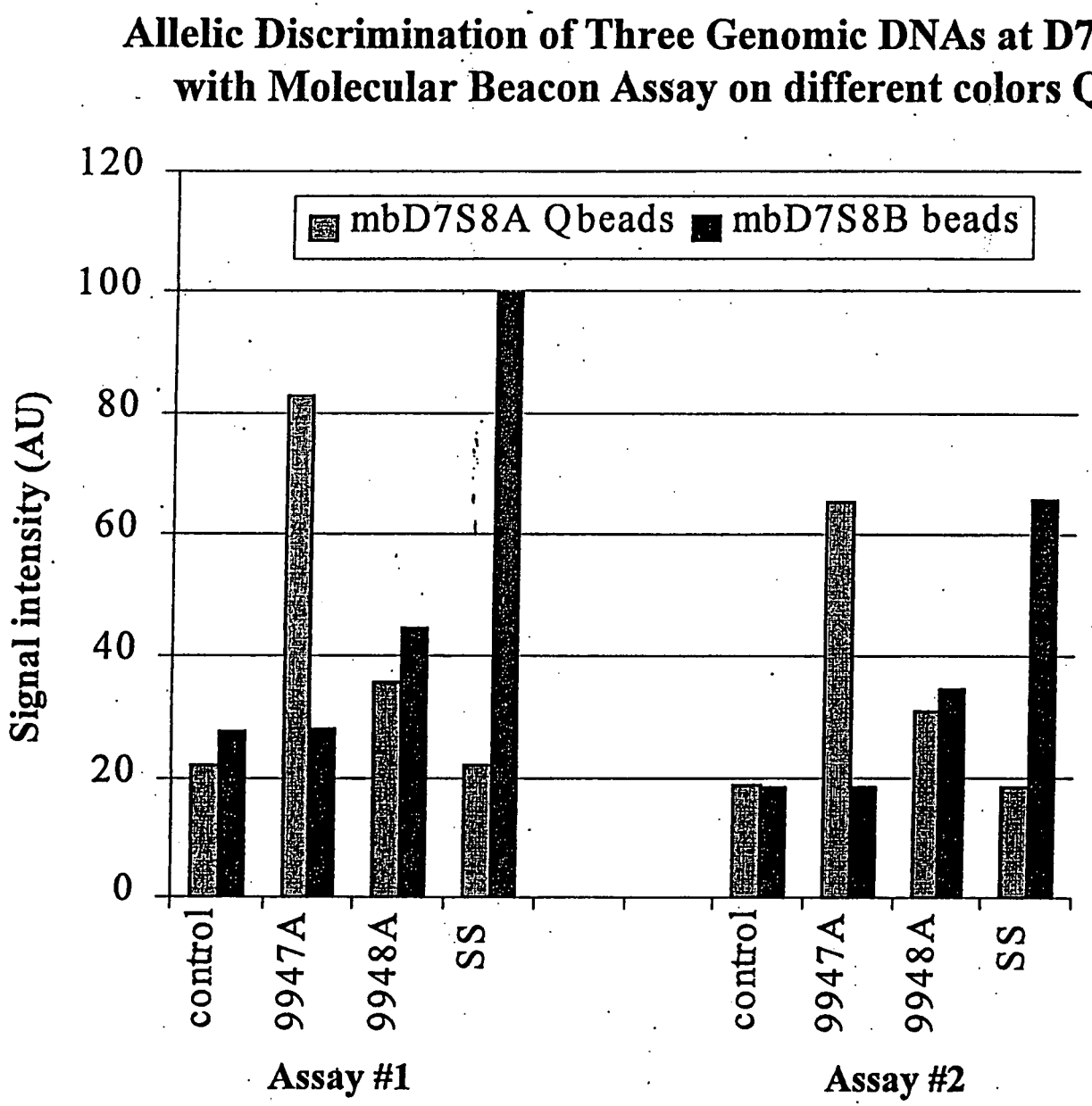

Allelic Discrimination of Three Genomic DNAs at D7S8 Locus with Molecular Beacon Assay on different colors Qbeads
mbD7S8A Qbeads
mbD7S8B beads
Signal intensity (AU)
120
100
80
60
40
20
0
control
9947A
9948A
SS
control
9947A
9948A
SS
Assay #1
Assay #2

FIGURE 15